

U.S. Application No. 10/722,478
Atty. Docket No. 20435-00144-US

LISTING OF CLAIMS

1. (Currently amended). A UV-curable adhesive composition comprising:
a vinyl-ether terminated urethane;
a poly-functional mercaptan, ~~and~~
~~substantially the absence of exogenous photoinitiators.~~
2. (Previously presented). The UV-curable adhesive composition, according to claim 1, wherein said urethane is synthesized from at least one polyester polyol and at least one aliphatic diisocyanate.
3. (Previously presented). The UV-curable adhesive composition, according to claim 1, wherein said urethane has a molecular weight, $\langle M_n \rangle$, in the range of 1000 to 50,000, more preferably 2000 to 12,000 and most preferably 3000 to 7000.
5. (Previously presented). The UV-curable adhesive composition, according to claim 1, wherein said polyol has a molecular weight in the range of from about 1000 to about 3200 AMU.
6. (Currently amended). The UV-curable adhesive composition, according to claim 1, wherein said diisocyanate is selected from the group consisting of ~~Desmodur-W~~ dicyclohexylmethane diisocyanate, IPDI, and TMDI.
7. (Previously presented). The UV-curable adhesive composition, according to claim 1, wherein said poly-functional mercaptan has at least 2 thiol groups.
8. (Previously presented). The UV-curable adhesive composition, according to claim 1, wherein said poly-functional mercaptan is selected from the group consisting of
ethylene bis(3-mercaptopropionate),
trimethylolpropane tris(2-mercaptoacetate),

U.S. Application No. 10/722,478
Atty. Docket No. 20435-00144-US

trimethylolpropane tris(3-mercaptopropionate),
triethyl-1,3,5,-triazine-2,4,6-trione tris(3-mercaptopropionate),
pentaerythritol tetrakis(2-mercaptoacetate),
pentaerythritol tetrakis(3-mercaptopropionate),
dimethyl bis(3-mercaptopropyl)silane,
1,6-hexanedithiol,
1,10-decanedithiol, and
3,6-Dioxaoctane-1,8-dithiol.

9. (Previously presented). The UV-curable adhesive composition, according to claim 1, wherein said poly-functional mercaptan is a 3-mercaptopropionic acid ester of a polyhydroxy compound.

10. (Previously presented). The UV-curable adhesive composition, according to claim 9, wherein said polyhydroxy compound is selected from the group consisting of glycols, propylene glycol, butanediol, hexanediol, cyclohexanedimethanol, glycerol, polyethylene glycol, polypropylene glycol, and polyester polyols.

11. (Previously presented). The UV-curable adhesive composition, according to claim 1, wherein said poly-functional mercaptan is trimethylpropane tris(trimercaptopropionate).

12. (Previously presented). The UV-curable adhesive composition, according to claim 1, further comprising at least one additive selected from the group consisting of polymerization inhibitors, antioxidants, tackifiers, flow and leveling agents, pigments, fillers, odor-masking agents, and UV-stabilizers.

13. (Currently amended). A thiolene composition comprising the reaction product of:

U.S. Application No. 10/722,478
Atty. Docket No. 20435-00144-US

a vinyl-ether terminated urethane;
a poly-functional mercaptan; and
~~the substantial absence of exogenous photoinitiators,~~
wherein
said composition is crosslinked with a curing agent.

14. (Previously presented). The thiolene composition, according to claim 11,
wherein said curing agent is ultraviolet light.

15. (Previously presented). A thiol-ene formulation curable to a crosslinked
polymer comprising:

a polyfunctional mercaptan; and
a vinyl-terminated urethane.

16. (Previously presented). An adhesive product comprising
a layer of a backing material; and
a layer of a curable thiol-ene formulation comprising:
a polyfunctional mercaptan, and
a vinyl-terminated urethane, wherein said thiol-ene formulation is cured to a
crosslinked polymer.

17. (Previously presented). A method of using a curable thiol-ene formulation
comprising:
providing a backing material;
providing on said backing material a layer of a curable thiol-ene formulation
comprising:
a polyfunctional mercaptan, and
a vinyl-terminated urethane; and
curing said thiol-ene formulation.

U.S. Application No. 10/722,478
Atty. Docket No. 20435-00144-US

18. (Previously presented). The method of using a curable thiol-ene formulation, according to claim 17, further comprising applying said formulation with a hot-melt coater.

19. (Previously presented). A hot-melt coater containing the curable thiol-ene formulation of claim 1.